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Notice of Allowability

Application No.

10/808,152

Examiner

Jack Dinh

Applicant(s)

ROXLO ET AL.

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/03/05.
2. ☒ The allowed claim(s) is/are 1-9, 16, 17, 19 and 20.
3. ☒ The drawings filed on 03 February 2005 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date <u>0505</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date <u>0205 & 1104</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Georgia Epps
Georgia Epps
Supervisory Patent Examiner
Technology Center 2800

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Patrick D. Benedicto on 04/26/05. The application has been amended as follows:

In the claims:

Claim 1. (currently amended) An imaging apparatus comprising:
a first of diffractive light modulators along a column of a light modulator array; and
a second set of diffractive light modulators along a row of the light modulator array, the diffractive light modulators in the second set being arranged such that optically active areas along the row are spaced apart, wherein the diffractive light modulators in the second set have a pitch that is at least twice the size of an optically active area of a diffractive light modulator in the light modulator array.

Claim 10. (cancelled)

Claim 16. (currently amended) A lithography system comprising:
A light modulator array comprising a plurality of diffractive light modulators arranged in columns, the diffractive light modulators within the columns having a first pitch and the columns being spaced according to a second pitch; and

A lens configured to project modulated light from the light modulator onto a substrate being patterned, wherein the first pitch is at least two times the size of an optically active area of a diffractive light modulator in the light modulator array.

Claim 18. (cancelled)

REASONS FOR ALLOWANCE

2. Claims 1-9, 16, 17, 19 and 20 are allowed in light of the Applicant's arguments and amendment. The following is a statement of the examiner's reasons for allowance. The present application relates generally to imaging systems, and more particularly but not exclusively to light modulator arrays. Regarding claim 1, the prior art alone or in combination fails to disclose or clearly suggest that the diffractive light modulators in the second set have a pitch that is at least twice the size of an optically active area of a diffractive light modulator in the light modulator array. Regarding claim 16, the prior art alone or in combination fails to disclose or clearly suggest that the first pitch is at least two times the size of an optically active area of a diffractive light modulator in the light modulator array. The claimed invention is therefore considered to be in condition for allowance as being novel and non-obvious over prior art.

3. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 USC 102 or 103 would be improper. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Information Disclosure Statement

4. The Information Disclosure Statement (IDS) filed on 11/04/04 is the exact duplicate of that filed on 02/03/05. Therefore, the IDS filed on 11/04/04 has been disregarded.

Other Information/Remarks

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bloom et al. (U.S. Patent 5,459,610) and Shiono et al. (US Patent 5,949,570) disclose diffractive light modulators arranging in arrays.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is (703) 605-0744. The examiner can normally be reached on M-T (8:30 AM - 6:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on (703) 308-4883. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh



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